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and the lower grades. There seems to be a loss of power at the point of change from the grammar schools. Often this unsettled period is enough to leave an unfortunate effect upon the whole high-school course of a pupil, when a little sympathetic care at the outset would have produced a very different result.

The plan will undergo still further revision as it is put into practice. Its purpose, the sources of information and the spirit in which it is undertaken are given on the printed copies, and I need not dwell upon them. The grammar-school principals have shown appreciation of the proposed plan. Conferences with the parents will soon be arranged for. The pupils themselves have already furnished interesting and suggestive data on reading. Each high-school teacher will have a small number of the pupils to look after. The data from the grammar schools will not be received until the last of October. If anyone here objects strenuously to confronting a pupil with his grammar-school record, I can but repeat, the whole spirit of the plan is in the interests of the pupil. It goes without saying, constant vigilance will be used to see that the pupil does not suffer from the system. If the high-school teachers were indifferent and took the reports of the other teachers without further inquiry or if they had not coöperated cordially in its formation, there might be danger from this source, but it has been guarded against as carefully as possible. Local conditions have had much to do in shaping this scheme of pupil study. Criticism and suggestions are asked for. Of those persons here, who see many objections to such a plan, I ask, do all the objections outweigh the advantages which a careful administration of the scheme by teachers distinctly conscious of its limitations and the responsibilities imposed on them, may ensure?

The second address was made by Professor William H. Burnham, of Clark University, on

SUGGESTIONS FROM THE PSYCHOLOGY OF ADOLESCENCE

It must, I suppose, be admitted that at the present time there is a somewhat widespread dissatisfaction with the results of

secondary and collegiate education. Such dissatisfaction is not confined to outsiders. A distinguished college president, who has had long and successful experience, laments in a recent article "the evils of ignorance, feeble logic, and moral apathy" among college students.¹ "There is no longer," he declares, "any such mental output from the colleges as in the days when Dartmouth gave the world Daniel Webster and Bowdoin, Longfellow and Hawthorne. Pupils' minds do not grow as they should under processes of education. The trouble is that the whole mental training has been defective." As regards the secondary schools, while the complaint is often made that training in the mother-tongue and in the classics is defective, the scientific instruction has again and again been declared worse than nothing. The exclamation of a distinguished professor in a scientific school is typical: "I should rather my students had never heard the name entomology than to come with the preparation they have!"

Similar complaints are heard in Germany and other countries. Not to quote the radicals, conservative men like Helmholtz and Virchow have criticised the results of education in the higher schools. At the famous Berlin Conference of 1890, Helmholtz said that the German graduates were usually worse than the American students in their inability to use the mother-tongue; and Virchow complained that the number of medical students who can distinguish color is very small. And, as they cannot see, so they cannot feel, they cannot hear, they cannot smell. If he took one of his servants, he could get a better judgment in regard to colors than from many educated people. And the same is true in regard to the determination of form, and the like. The ability to observe that the natural man possesses is, he declares, weakened by the present kind of instruction. The graduates of the higher schools go out equipped with diplomas. The task of the school should be to produce, not diplomas, but capable men. "Sie machen Zeugnisse aber keine Menschen."

The causes most frequently assigned for these evils are the

¹ Andrews, *Modern College Education*, *Cosmopolitan*, September 1897.

classical studies in the curriculum and the classical methods adopted. One of the writers already quoted expresses this common view: "These ill features of college education," he says, "are closely connected with those classical studies which, in most of our colleges, still remain the center and pivot of the curriculum."

So strong has been this popular opinion that even in Germany, the stronghold of classical culture, considerable modifications have been made in the curriculum of the *Gymnasien* to the detriment of the classical course. Norway has gone farthest, and by a recent law takes action revolutionary and unheard of. The ancient languages are entirely excluded from the curriculum of the higher schools. In other European countries the classical curriculum has been more or less curtailed.

That the evils complained of exist and that there is need of modifying the old curriculum I do not deny. I doubt, however, whether the critics cited have rightly divined the cause. I have no intention of raising the perennial question of the relative merits of classical and scientific education; but it is worth while perhaps to note that whenever the results of secondary and collegiate education are unsatisfactory, we forthwith attempt to change the subject matter of the curriculum or in some way to tinker the educational machinery. The cause of such evils usually lies deeper. In the present case the matter is very complex. You would rightly be suspicious of any offhand solution. But without attempting to analyze the problem, it may be possible to point out the direction in which to look for the root of the trouble. My thought is very simple and may be summed up in one general statement. We have devoted attention to the content of culture and to the scholastic product to the neglect of the object of culture—the growing youth.

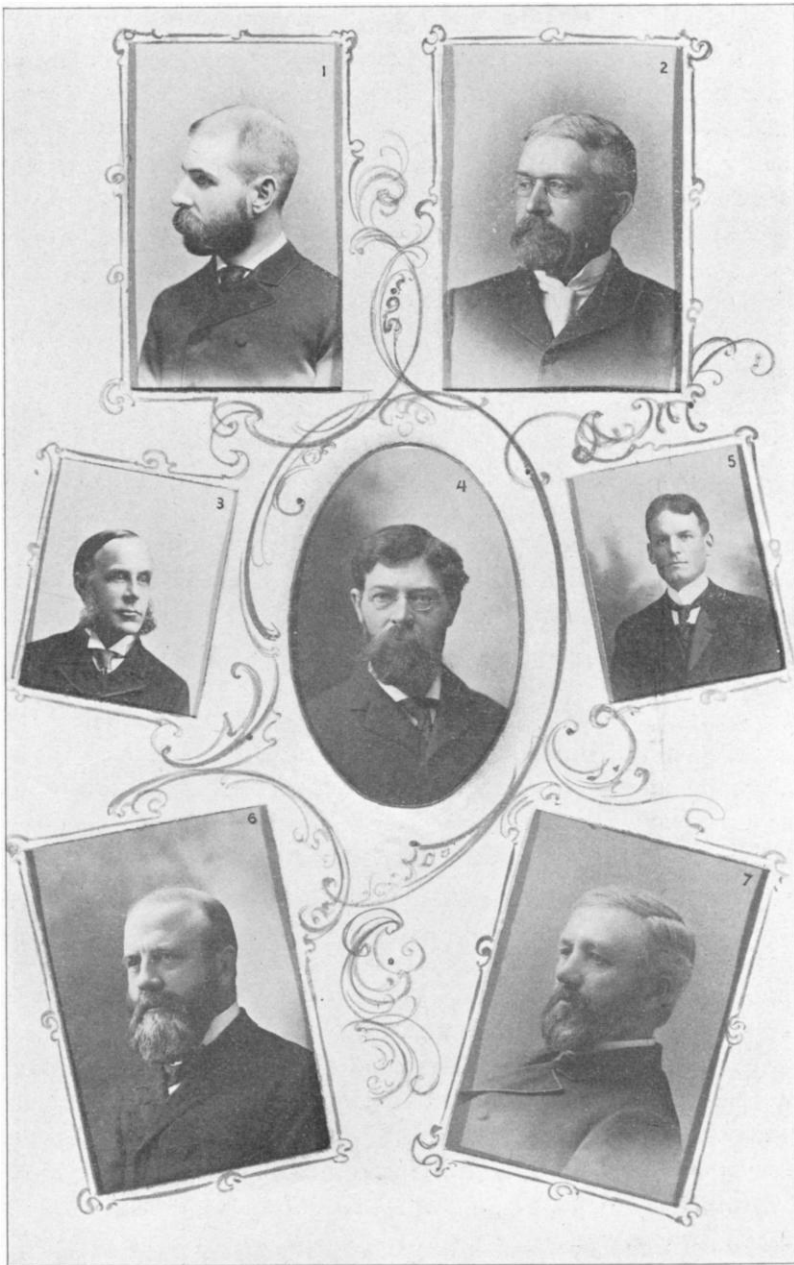
From the secondary school the complaint comes to me that the teachers cannot give due attention to the needs of the pupils because of the necessity laid upon them of turning out certain scholastic products that shall be marketable at the door of the college. In the colleges, according to the testimony of Presi-

dent Andrews, the neglect of the pupils is still worse. "A great many teachers," he says, "nowadays utterly repudiate their calling as creators of manhood, and are anxious solely how they may be faithful to the subjects which they expound. They will compass heaven and earth to excogitate a system, compose a book, or prepare a course of lectures, but do nothing toward the infinitely more needful and precious task of building up in character the human beings who face them each day in the class."

This testimony, together with the results of observation, seems to justify the conclusion that for some reason there is a tendency in secondary and collegiate education to give attention unduly to the content of culture and the scholastic product and to neglect the object of culture—the growing boy or girl. It is true that in a certain sense it is a narrow philosophy which considers merely the needs of individual pupils; for the pupil is a member of an organism and the interests of this organism, the school, and also of the larger organism of which he will soon be a more active member—society, including the needs of civilization as represented by the institutions of society, the home, the church, the state, must be considered. This involves too, regard for the content of culture as one of the supreme interests of society. But while it is dangerous to confine one's self to a single educational principle, however true, it is sometimes well to go back of academic institutions, curricula, and traditions, and to consider directly the needs of the pupil himself as a growing and developing organism.

The secondary teacher has the pupil at perhaps the most important epoch in development—the period of puberty and adolescence. Every secondary teacher recognizes the importance of this period. But certain recent investigations have especially emphasized the significance of it and indicate that it represents the focal point in education. Let me allude to some of these studies very briefly, not with the expectation of showing their results, but rather with the hope of suggesting how the object of secondary education—the growing boy or girl, looks from the point of view of psychology and anthropology. Even

in the matter of physical growth the advent of adolescence is marked by noteworthy phenomena. Bowditch, Key, Erismann, and many other investigators, from the study of growth rates in many thousand children, have found in case of boys somewhere from the thirteenth to the sixteenth year of life a decided acceleration in the rate of growth, and a similar acceleration in the growth of girls beginning one or two years earlier. From Key's study of 18,000 Swedish children it appeared that this period of maximum rate of growth is a period of maximum power to resist chronic diseases. And Dr. Hartwell's study of death rates among Boston school children also indicates that the years of rapid growth are years of great vitality. Besides the other obvious physical changes there is a marked change in the relation of the heart to the arteries causing greatly increased blood-pressure as adolescence approaches, also changes in the skeletal structure, in the features, in the blood, and, most important of all, in the brain, although nobody yet knows the character of these last. Clouston has found many nervous diseases incident to this period and yet likely to be outgrown with proper treatment. The burden of his book — *Neuroses of Development* — is the danger of premature and unrelated developments. Investigations by Kellar, Griesbach, Kraepelin, and others have had to do with the adolescent's susceptibility to fatigue in intellectual work. Careful studies have been made by various methods with the ergograph, the æsthesiometer, and in other ways; and although the results thus far obtained have not solved the problems of the hygiene of study, they have emphasized many of the teachings of common sense; and among distinct contributions they have shown that there are definite physical concomitants of nervous fatigue that can be tested experimentally, that central fatigue affects the whole psycho-physic mechanism, that great individual differences exist in respect to fatigue. Kellar has reported in the *Biologisches Centralblatt* the results of tests on some thirty gymnasium students by means of the ergograph, which show that there are well marked types as regards such susceptibility to fatigue. And it has been seriously



1. HARLAN P. AMEN.	2. JOHN H. WRIGHT.
3. WILLIAM GALLAGHER.	4. REV. DEWITT HYDE.
6. JOHN TETLOW.	5. FRED W. ATKINSON.
	7. WM. C. COLLAR.

urged in Germany that pupils should be graded according to their ability to do mental work without fatigue.

Other studies indicate that this period is the great epoch in functional acquisition and readjustment, and they suggest grave questions in regard to what training should be at the time of functional mutation of an organ. Dr. Paulsen, for example, has studied the voices of many hundred boys at this period. In 1 per cent. of the cases the change occurred in the twelfth year. In the following three years the number rose to 10 per cent., 30 per cent., 50 per cent. Seventy-five per cent. of the cases were unable to control the voice in producing musical tones. Should voice training be omitted during this period of mutation? Opinion is divided. Such an eminent authority as Dr. McKenzie says it may be continued within certain limits under competent directions. Probably much the same answer should be given in other cases of functional readjustment.

Noteworthy investigations have shown also the mental changes and the psychic activity of the period, appearing in manifold activities and interests, intellectual awakening, the storm and stress of doubt, the conversions, the intense emotional life, the fluctuating interests and enthusiasms, the general instability, and not infrequently the moral aberrations and perversities. All this is tame because for statistics and concrete illustrations I must refer to the original studies. But the reader can recall cases personally observed and add to these the ones described by novelists and biographers. George Eliot, for example, has described many different types of adolescent character. Maggie Tulliver, with her enthusiastic self-renunciation alternating with "volcanic upheavings of imprisoned passions," with her "wide hopeless yearning, for that something whatever it was that was greatest and best on this earth;" and Tom with his energy and self-reliance, kept from waywardness by the wholesome prophylactic of work; Gwendolen Harleth with her intense desire for admiration, her impulsive activity, selfishness, and inchoate religious and ethical sentiment. These perhaps are the most striking examples.

The sequence and causal relations of these changes we do not know. Little is known about the cerebral changes that occur and the concomitant psychic processes. We have, for example, at the advent of adolescence an accelerated rate of growth on the physical side, the increased intellectual activity on the mental side. Whether the two come simultaneously in the individual or whether successively is not clear as yet. Researches by Gilbert and others suggest strongly that the periods of maximum rate of physical growth and the periods of maximum mental development do not coincide. This and many other problems await investigation.

How can secondary education be adapted to the needs of the developing youth? After a study of the complexity of the physical and mental changes of this period one is at first inclined to answer this question by saying that nobody knows. But a few practical suggestions occur to the psychologist. I have no doubt that my vision from this point of view is somewhat astigmatic. I shall try to report it honestly, however.

1. The psychologist is impressed with the opportunity of the secondary teachers. Puberty, the beginning of adolescence, is the great crisis in the functional development of the individual. And the importance of this whole period from a wider point of view and the interest that centers about it can hardly be exaggerated. Recent studies have shown how largely the world's work has been done by adolescents. When the work has not been actually done at adolescence, the inspiration for it, the idea and plan of it, have come in adolescent dreams. Then for a time man is capable of independent and original thinking. Then for a brief period the fetters of habit are thrown off, and one is not a slave to his yesterdays. Reform is possible. Variations are possible. How conservative the world would be if it were not for its adolescents is a matter of everyday observation. The pioneers and adventurers are largely adolescents. The reformers in the church, in politics, in society, are young men and women. The converts in politics and religion are adolescents. In politics it has been deemed almost a mark of weak-

ness of character or a breach of honor if a mature man changed his party. And in religion a convert among the middle ages or the elderly is thought a special work of Providence. Even cases of intellectual stupidity and moral perversity are not hopeless. Just as in case of a large number of diseases incident to this period the prognosis is favorable, so there is good hope of recovery from intellectual aberrations and moral defects. I could make this emphatic if there were time to cite concrete cases. Moral delinquency at this period no more indicates the criminal than nervous disorder is a sign of degeneration. "When I recall my own adolescence," says Tolstoi, "I can understand the incentive to the most dreadful crimes committed without aim or purpose, without any precise desire to harm others—done simply out of curiosity, out of an unconscious need of action." The teachers in the higher schools have their pupils at this period of functional acquisition and readjustment, when they are open to new impressions with almost hypnotic susceptibility. The opportunity for good is only equaled by the possibility of evil.

2. The period of adolescence is preëminently a period of self-revelation. It is the time for many things. If ever Herbart's many sided interest be possible it is now. Specialization in its early years is likely to be premature. It is also a period of self-assertion and self-realization. The youth is less teachable, as Thomas Arnold used to say; but he is more capable of independent thought and study. He is less amenable to discipline. He reacts against rules and authority. Report has come to me of one school where the pupils prided themselves on breaking all the rules of the school each day and counted that day lost when they did not succeed. But while the adolescent reacts against discipline, he is capable of great efforts at self-control, and will do anything if you can put him on his honor.

3. Both observation and the results of investigation indicate the advantages of an active life at adolescence. Activity of some kind in a real or an imaginary world the adolescent will have. The schools must reckon with this impulse and give

legitimate scope to it. It is the time for manual training, physical exercise, athletics, sport, first hand study of nature, and independent mental activity in the laboratory and library. Mr. Lancaster hardly goes too far in saying, "The pedagogy of adolescence may be summed up in one sentence: Inspire enthusiastic activity." But the function of the school is to turn this activity into legitimate channels and to develop wholesome interests.

4. Besides the complexity and revolutionary character of the changes that occur at adolescence the psychologist is impressed with the individual variations. We set down the period of accelerated rate of growth at from fourteen to seventeen for boys; but in any individual case it may come much earlier. It may be postponed later. So with the other physical and mental changes. Again, in some, the obvious changes are chiefly physical and the mental come slowly and without excitement. In others the whole psychic life is rent and shaken by a storm and stress period of doubt and readjustment. In view of the complexity of the processes of development to adolescence and the individual differences in adolescent character, the largest measure of freedom should be granted to the secondary teacher, in order that he may be able to adapt education to the needs of the individual pupil—freedom from competition, freedom from any necessity to train showmen and prize winners, freedom from hurry, freedom from inspection that demands definite results in a definite time, freedom from prescription of methods, freedom from external interference, political, social, or religious. But, to make freedom safe, the teacher must be thoroughly prepared for his work. In a word, the motto for the higher schools should be this: Demand an educated teacher and give him freedom.

5. The education of the secondary teacher should be professional as well as academic. The opinion is still prevalent that the elementary teacher needs special training, but that the secondary teacher is such by the grace of God and the authority of one's alma mater. This has been the feeling in France and

Germany as well as in this country: and in England Sully told me a few years ago that a good cricket player was pretty sure of a place without special quality of any other kind. Far be it from me to discount the advantages to the teacher of skill in cricket playing, or of a college education, or of the divine call. But the first two are not enough, and the last means, I suppose, the teaching instinct. This may be sufficient to make a good teacher, as current opinion has it that the best teachers are born, not made; but as an argument against professional training this is hardly worth discussing; for the supply of teachers who are born such does not equal the demand.

A part of the professional training of the secondary teacher should consist in a study of the psychology of adolescence. Not that old teachers do not know its characteristics and appreciate its significance; but that the young teacher at the outset may have sympathy with adolescence, prevision of its possibilities, and apperception for the lessons of experience.

6. Among the most striking characteristics of this period are the great vitality, the complexity of the psycho-physic development, the puzzling mixture of good and evil, the manifold interests, the capability of varied activity, and the great individual differences. Now I would submit that the ordinary college entrance examination in Latin, Greek, mathematics, and the rest is rather a narrow test of the manifoldness of adolescent character. I am confident also that secondary teachers will agree that in a considerable percentage of cases the entrance examination does not indicate whether or not a student is fitted to profit by the college course. Fitness to begin the work of the college depends upon physical development, health, endurance, habits of study and of sleep, upon one's interests, accuracy in performance, power of independent action, self-control, ability to use liberty, and like qualities, quite as much as upon any intellectual attainments that can be gauged in a blue-book.

Furthermore the freedom desirable for the secondary teacher is not possible with the present system of college entrance examinations. Their scope should be wider both to give the

secondary teachers more freedom and for a more adequate test of the fitness of candidates. In the first place there should be a greater number of options in the entrance examination.

The last few sentences were written before reading the new requirements at Harvard. I am pleased to find my general position justified by the long step Harvard has taken in this direction. The general principle recognized by Harvard and several other institutions is more important than the concrete changes. This principle, as I understand it, is that power, quality of work, habits of thought and observation, are more important than acquaintance with certain prescribed books. But unless the new requirements are wisely interpreted, I fear they will add to already congested programmes. The spirit of the movement, however, is admirable. The chief fault that can be found is that it does not go far enough in providing for tests of character and ability.

In my opinion all this should be supplemented by one thing more—which I hope may be embodied in the new regulations, namely, provision for a report from the secondary teacher concerning each individual pupil. (I do not mean the plan of certification in vogue in many places.) This report should embrace such rubrics as the following: height, weight, as full data as possible in regard to health, endurance, temperament, interests, greatest strength, greatest weakness, activities outside the school, habits of study, accuracy, thoroughness, general character, self-control, power of independent activity, ability to use freedom, stability of purpose. This report would not take the place of entrance examination, but would supplement it. From the results of examination together with the information embodied in such a report a jury could decide more wisely in regard to the fitness of a candidate than from either alone. With such a plan the mistakes of admitting unworthy candidates which every college instructor can vouch for, and of excluding worthy ones which every secondary teacher can report, would be reduced to a minimum.

Such a plan would also be a wholesome stimulus to the

secondary teacher, and it would be a factor of much importance in increasing his freedom. Knowing that habits of observation and reasoning, of thoroughness and originality, would count as well as cleverness at examination; that interest, enthusiasm, and ability to work, might atone for a minimum mark in Algebra or Latin Grammar, the secondary teacher would be spared much of the hurry and anxiety that now overburdens his life.

Some may say that all this is nebulous idealism, that it is not practical. Everything is nebulous and unpractical before it is fully worked out. If it is idealistic I am glad of it. That simply means it is the method of the future not of the past. As Dr. Richardson once said, "Utopia is but another name for time."

Others, perhaps, will say that the plan suggested is nothing new. It is just what the colleges are already doing. In a sense this is true. The plan suggested is not revolutionary. It is directly in the path of progress that Harvard has been pursuing for a quarter of a century. Translation at sight, original problems in geometry, notebooks in science, and the newer methods of examination in English, all aim to test ability rather than mere knowledge. But what I would emphasize is the advantage of going much farther on this path, and of including among the qualifications for admission certain psycho-physic and moral characteristics.

It appears that in some prominent colleges it is now possible in individual cases for a student who has failed to pass the examination to be admitted on the recommendation of a secondary teacher vouching for the good health and character of the candidate. The existence of such a backdoor entrance to the college is an admission of the soundness of the principle here advocated. But its existence does not increase the freedom of the secondary teacher or remove the strain from the pupil. It does not exclude unfit candidates who happen to pass the examinations, and it does tardy justice to worthy ones who do not happen to have the precise scholastic products demanded. And, finally, it fails to give the stimulus to the secondary schools to

work for healthy development, power, and character that would come from the plan suggested.

The purpose of any plan of certification or entrance examination is to determine whether the student is able to do the academic work with profit to himself and without detriment to the college. But whether or not a student will profit by the college work depends quite as much upon his character and capacity as upon any intellectual attainments. When one thinks of the tremendous influence that Harvard has exerted upon the intellectual training given in the secondary schools of this country merely by her entrance examination, one wishes profoundly that she might take the opportunity offered to broaden that influence by better tests for character and ability.

The one general suggestion made in this paper is that the present evils in secondary and collegiate education are due to lack of appreciation and knowledge of adolescence rather than to an unwise choice of subjects in the curriculum; or obversely to a tendency to exalt the content of culture unduly and to neglect the object of culture. This is by no means merely a rhetorical distinction. It is a difference that involves one's judgment in regard to a hundred questions concerning methods, curricula, sequence of studies, articulation of grades, and the like. When devotion to the content of culture is dominant, formulas, methods, articulation of grades, logical order of studies are of prime importance. On the other hand when attention centers upon the object of culture, when the needs of the pupils are the first consideration, it is seen that the logical method may not be the pedagogical method, that the logical sequence may not be the psychological sequence.

I can stop for but a single concrete illustration. Should Latin precede French in the curriculum? It usually does because it is the traditional sequence and it is logical. By no means does it follow that it is the psychological and pedagogical sequence, *i. e.*, the order adapted to the interest and apperception of pupils and the one best suited for introduction to the study of foreign languages. At Frankfort in Germany and

several other places the experiment has been tried for several years of beginning with French in the first year of the course and postponing the study of Latin for three years. The results already obtained have furnished considerable evidence that this is the pedagogical sequence. It is reported that the pupils have the benefit of three years in French and no appreciable loss in Latin; for after ten hours a week in Latin for two years the pupils of the Frankfort Gymnasium are as far advanced as those in other higher schools who have had the subject for five years. The chief reason for beginning with Latin appears to be the fact that we have begun with Latin and that is the logical adult order.

These few suggestions have been made merely as representing in some degree the psychological point of view. But they are quite in harmony with true pedagogy. Two educational ideals are in eternal conflict.¹ One idolizes the means of education, the other has regard for the end of education. One gauges education by the hours, months, and years spent in the schoolroom, by the subjects studied and pages turned, by exercises written, examinations passed, and diplomas won. The other looks less at what a pupil has *read* than at what he can *do*, and deems present intellectual health and mental ability the only evidence of a good education. The representatives of the former ideal are always anxious to increase the quantity of education by crowding some new subject into the curriculum, by lengthening the school day or the school year, by a rigid economy of the minutes, or in like ways. The representatives of the latter, aim to keep pupils always at their best, and would shorten the periods of study, if by so doing it be possible to quicken the pace of their students and increase attention. The former sacrifice pupils for the sake of subjects, curricula, promotion, logic. The latter would even sacrifice the symmetry of curricula, systematic articulation of grades, and logical method and sequence, whenever necessary in the interests of healthy growth and the development of character.

¹ See the Pedagogical Seminary, Vol. II, No. 1, p. 60.

DISCUSSION

THE PRESIDENT: It must be that the presentation of these important topics by the two gentlemen who have already addressed us, each from his own distinct point of view, and the perfect harmony that has appeared in the two papers, have stirred in your minds a desire to participate in the discussion which is to follow. It is not my purpose to call upon you one by one, but I trust that each of you, without waiting for the others, will take up the theme and let us have, from theory or from practice, a careful discussion of the subjects which are now before us.

MR. CHARLES C. RAMSAY, Principal of the B. M. C. Durfee High School, Fall River, Mass.: Mr. Chairman and members of the Association: Although I feel unable to contribute anything new to the discussion of the important themes presented, yet, as I was asked a few days ago to speak this afternoon, I will keep my promise by merely opening the discussion. Both papers, it must be clear to us all, are closely related to a common subject—a subject, moreover, in which I am deeply interested. By way of introduction I know you will indulge me in the expression of some general thoughts upon the subject under consideration that occurred to me on the way to this meeting, although, until arriving here, I did not know what the contents of the valuable papers to which we have listened would be.

Several centuries have passed since the days of Lord Bacon and his *Novum Organum*. The method of science, that is of induction from observed facts, slowly entered and has slowly dominated the study of nature, and, within recent years, it has been applied—in some measure and somewhat timidly—to the study of human nature and human institutions. The field of education, or the development of men from infancy to maturity, is the last to be entered by the scientific method. But it has scarcely yet been applied to the more important problems of education. Certainly, few results among the many we may expect from its use have yet been attained. Hitherto, and even now, speculation and *a priori* methods of reasoning have been and are the chief reliance of students of pedagogics. When such has not been the case experience of an isolated and fragmentary character has been substituted. But from the great movement toward the study of children and the study of adolescence—and, especially and chiefly, from university departments of pedagogy we may confidently expect not merely

new truths and new methods of studying educational problems, but a revolution in methods of teaching and managing schools. The scientific method applied to the study and practice of education not only magnifies the importance of truth and sets aside errors and prejudices, in this as in all other fields in which it is used, but it is essentially *beneficent*. It considers, contrary to what at first might be supposed, not so much *knowledge* and facts as the *individual* and his welfare. Science here is thoroughly *humanizing*. It would, for example, construct a course of study or devise a method of teaching or management adapted to the needs—if not of every individual yet—of the great majority of the youth for whom such a curriculum or method is prepared.

The speakers this afternoon have, I think, very successfully maintained their respective theses. If, perchance, any member of this association, recalling former programmes and knowing that the object of the association has been rather to legislate, to effect actual changes in school and college systems—if, remembering the great practical usefulness of this association, any member should feel that at this meeting we have departed from it and gone “wool gathering,” I wish to correct such an impression. It is just possible that—though this association has done much important work—it has sometimes put “the cart before the horse,” that, like other associations whose methods we have desired to avoid by the adoption of a better system of operation, we, too, may have been making recommendations and requisitions without sufficient and accurate data, and groping in the darkness of pedagogical speculation. If the present step be the beginning of a change in the methods of investigation of educational problems by this association, I for one welcome it—if, as I expect, it will throw light upon the roots of the matters in which we are so deeply interested and the difficulties we so much desire to remove. If this association—whose influence is so potent not only in New England but throughout the country—should adopt the scientific method in the study and application of pedagogical principles, it would be very difficult, I think, to measure the gain to the cause of education.

In reviewing the papers of the afternoon, I think of one or two cautions that might well receive our attention. In the chemical laboratory, how molecules behave in the presence of other molecules, what changes they undergo, have now been reduced to laws of tolerable certainty. Perhaps this has been easy, too, compared with the

difficult problems presented to the student of the science and art education. How children and youth will behave in the presence of other children and youth, how they will react upon their environment, is, it seems to me, a much more difficult question; for the human will is capricious and it is not so easy to investigate self-conscious human beings as to study inanimate natural objects. This caution, I think, needs often to be expressed by the practical educator to the scientific student of education, or of psychology applied to education. It is easy, in the study of human nature, to overlook hidden or slightly developed elements in condition and environment. For example, if we judge merely by the past experience and behavior of youth, can we determine their capacity for the acquirement and application of knowledge? Confining ourselves to the study of old conditions, what can we know of the development of character and mental power of pupils under the inspiration of a better, more enthusiastic, and wiser teacher? or in the presence of improved apparatus of instruction? or in the midst of a more refined and more intellectual atmosphere? Much data obtained by the use of the scientific method in the study of education cannot be final, but must be qualified by the particular conditions of the youth studied. The great difficulty in determining accurately the laws of mental life, growth, and action, and the elaboration of the pedagogical principles dependent upon them, must be clear to us all. It seems to me, however, that the obstacles to the scientific study of education are merely incidental; that they can be surmounted; that one allowance can be made for all modifying conditions. Instead, therefore, of constructing school programmes and devising methods not based upon ascertained facts, but rather upon arbitrary standards, guesses, and traditions, we may sometime proceed upon scientifically established principles resting upon many observed facts.

It must be confessed that in actual practice, we are often far from doing even as well as we now know, to say nothing of the knowledge of youth that may yet be gained from the scientific study of education. For example, there are yet many teachers, I fear, who assign daily lessons at the ring of the bell, entirely regardless of the capacity and environment of the pupil and the time at his disposal. Doubtless there are yet many more who assign lessons without a single conference during the year of all the teachers of a given class, to determine the whole time that ought to be at the disposal of the pupils in the preparation of their lessons and the approximate share due each. Too

often lessons are assigned in one apartment of a school regardless of the claims of any other department, even in cases where lesson assignments have been deliberately planned in advance. I do not here mention the graver errors that prevail in many places in making courses of study and treating other matters of school economy. Before the scientific expert can determine the real capacity of a pupil, therefore, he must make due allowance for the conditions and limitations of our present pedagogical practice. Without experience under better instruction and improved environment, the powers and possibilities of youth must of necessity remain largely matters of mere conjecture.

Another caution : Dr. Atkinson was so kind as to submit to me for my opinion last spring his schematic outline for obtaining data regarding his entering classes from grammar-school teachers and parents. Although I was much pleased with it, I made some comments in response that may profitably be repeated here. It seems to me that in some places such a method of youth study as he has begun would have to be used with the rarest tact and skill, or fail utterly of attaining its object. As I wrote him, many high-school teachers have said in my hearing that they did not want to know the previous school records of their pupils, since they wished to receive them without bias or prejudice. Many grammar-school teachers have felt it undesirable and injudicious to furnish the teachers of a higher grade such data concerning promoted pupils. Parents also are far more sensitive to fancied evil results of such a method of youth study in some places than in others. School authorities, moreover, might in some places forbid its use. Communities composed of persons of broad views and liberal culture will have most appreciation for and will offer greatest encouragement to such a system. I speak of these things, however, not as opposing the method but to call attention to some of the obstacles to its adoption and successful use that must be met and overcome.

While listening to Professor Burnham's admirable paper, I was forcibly reminded of a statement of Professor Krafft-Ebbing in his great work upon psycho-pathologic sexual life, that the period of puberty is one in which if a youth does not acquire *ideals* he never will possess them. If this be true, then the secondary school period is one wherein the truth, "He which is filthy let him be filthy still, he that is holy let him be holy still," applies with tremendous force. If this were the only truth for us of the psychology of adolescence, the

opportunities and responsibilities of secondary teachers are, indeed, very great.

For one, I am very glad that these themes have been presented to this association; and, as with past suggestions and views brought before us, I hope the truths set forth may be realized in actual practice in the schools and colleges we represent.

PROFESSOR MARY A. JORDAN, of Smith College: It has been suggested that I should say something this afternoon from the point of view of a person who has had more to do with teaching girls than with any other line of secondary or advanced education. I am so unfortunate as not to have heard the first paper this afternoon, and, therefore, can make any remarks upon it only from the inferences which I have been able to make in listening to the second. As far as I understand, however, I am in so thorough concord with the conclusions of both that what I have to say is rather by way of corroboration than by way of technical discussion.

Perhaps the first point which suggests itself to a teacher of girls is that the difficulties and problems of the period of adolescence are a little more obvious in the case of girls than of boys. I think, too, that we usually find it more difficult with girls to preserve the proper distinction between self-intelligence and an undue and dangerous self-consciousness. In saving them from that docility on their part, which makes them too much dull and inert material, as one extreme of their character, we have to avoid that almost hysterical self interest which make them really interfere with their own development by the energy of their interest in it, and I find, after a considerable amount of investigation, that those students who have been happily and intelligently let alone as far as theories about their own education and self development are concerned are usually as well off as those who, in the usual phrase, have been rendered intelligent. Ignorance of one's intellectual system seems to me almost an advantage, certainly so far as the feeling of too strong a personal responsibility for what is going on in one's development is concerned.

One very serious problem, I think, of adolescence has not been mentioned and that is the closely related and concrete problem of age on the part of the parents, who almost invariably feel that their children, and particularly their daughters, ought to avoid all their mistakes, ought to make economies of all their extravagances, and ought to have in the enthusiasm of youth all the attainments and the virtue and the

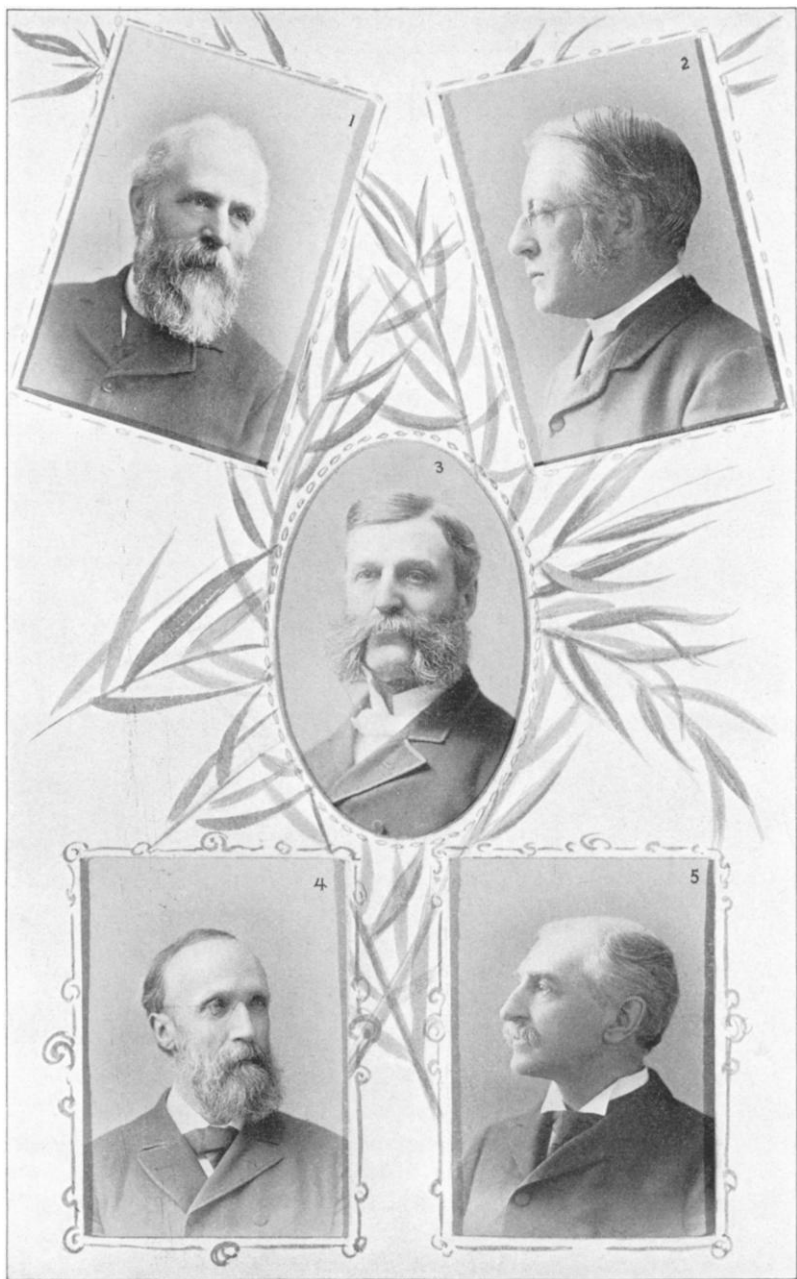
prevision of very considerable maturity. This difficulty, it seem to me, meets every secondary-school teacher, and I happen just now to be fresh from an experience which was shared with me by a very intelligent and energetic principal of a so-called high school in which until within two years no Latin had ever been taught. Although this man is putting all his energy and enthusiasm into the task of bringing up the work of that school, it is quite impossible thus far for him to persuade the parents of the community that there is any practical value in certain studies for their children. They feel, moreover, that the taxpayers of the community should not be asked to educate a small number of persons for college, and they make a sharp distinction between those talents and powers which need to be educated in certain classes of students during a limited time of youth and those necessary for others. The value of a college education, which seems to many of us a matter of course, is a matter of the gravest doubt in this community, in other respects not on a level with Hottentots, not in any sense lacking perhaps in general intelligence, in patriotism or in morality.

I find, too, after an examination of a sophomore class of some two hundred and fifty students, by means of careful asked questions, that more than 75 per cent. of them had no notion whatever during their preparatory course that one line of study had any direct relation to another. They were convinced that a fact in ancient history was forever done with the day they closed their text-books. To be asked to use it in any other department seemed to them a base imposition on human nature. Last year I tried the experiment of introducing something of the "power requirement" into the examinations. The experiment was attended with almost uniform objection from the parents of unsuccessful candidates. The parents said that Sadie and Mattie had invariably stood well in their classes; in some cases were honor students; it seemed therefore manifestly absurd to ask them for further evidence of attainment. One of these honor students, after having passed through a high school, having taken a technical course of study to prepare her to be a teacher, wrote the following in answer to the requirement: "Tell as well as you can, since you have the material, the story of Numa Pompilius." The answer was: "I never heard of Numa Pompilius. Her name therefore suggests nothing to me, but I will narrate her story as I think it ought to have been. Numa was a little girl living in the country. She was exceedingly anxious to have an education and so she picked water-cresses and sold them to the

travelers and at last attracted the attention of a kind gentleman, who is at once a minister of the gospel and a teacher, and he put her in the way of the gratification of her heart's desire." This student was perfectly satisfied that since her acquaintance with Roman history had been "certified" my requirements in English were abominable.

Another distinction which it seems to me needs to be made is in favor of two very distinct classes of minds among girls. Perhaps all men are alike. Girls fall into two very widely different classes: those who have original power, who possess the ability to apply principles, and those who, as far as I am able to find out, have not such power or ability but who are nevertheless admirable persons, capable of becoming good citizens, of doing their duty in the world and of reflecting considerable credit on the institution that may give them a diploma. With them industry has a certain educating and culminating result. And I must say that I think as much injustice would be done to one-half the girls in the world by accepting nothing but the so-called "power examinations" as is done to the other half by insisting upon precise answers and precise questions on examination papers. I had a very curious experience some years ago. The professor of English in one of the Western universities, attended by both men and women, brought me a large number of type-written papers signed in cipher. These he handed to me without any classification and asked me to look them over quickly and tell him what I thought of them and how I thought they compared, on the whole, with corresponding work in the Eastern colleges. As I looked them over, they seemed to be of two clearly marked classes. I said: "Papers like these I am perfectly familiar with, but these others have throughout a quality I am trying to secure." He said, "That sounds very interesting. Let me see." Reference to the paper with the names corresponding to the ciphers showed that I had picked out every boy's paper in the list. The poorest of these were all characterized by a quality that the papers written by girls with which I was familiar were able to secure only after long training if at all. Many of the papers written by the boys were extremely crude and were full of blunders, but as a class they possessed a power of applying principles which those of the girls did not show. There were instances of great literary merit, however, among them. As a matter of fact the best paper of them all was written by a girl.

MR. SAMUEL T. DUTTON, Superintendent of Schools, Brookline :
If it is proper for a person not a member of the association to say a



1. CECIL F. P. BANCROFT.

2. CHARLES W. ELIOT.

3. WM. F. WARREN.

4. THOMAS D. SEYMOUR.

5. REV. WILLIAM J. TUCKER.

single word, I should be glad to do so. It is because of my profound interest in the subject and appreciation of the papers which have been read that I am glad to join the discussion.

I find myself sympathizing very much with the remark of Mr. Ramsay, that if this association, after several years of careful and fruitful study of the organization of courses, should devote itself to these very vital and important subjects we should hope, I am sure, to get out of it something important and valuable. We have been going through, in all departments of instruction, a period of organization and our attention has necessarily been devoted to that phase of work. Because of the rapid growth of our schools and the massing of people in cities, the problems have come up more rapidly than we were able to meet them. But it seems to me that we ought at this point to turn our attention to the things that have been suggested this afternoon, and I was very glad that Dr. Burnham did not close his most interesting paper without calling attention to what seems to me the important fact that secondary-school teachers are not likely to give their best thought to these questions until there has been a radical change in college entrance examinations. I have no desire to complain or make any random criticisms upon these matters and I welcome with great pleasure the changes that have been made already, but still I do myself most humbly and profoundly hope that the time will come when our boys and girls can walk from the doors of our high schools up to the college with a statement from our teachers as to what they are and what they have done, and be given an opportunity to do work. I believe that in certain parts of this country, as for example in the West, where students are able to do this, they are getting a better class of work in the secondary schools, as well as in colleges. And I am prepared to say further that I believe that the time is not far distant when Yale and Harvard, both of which institutions I revere, will set an example of opening their doors, taking students for what they have done and giving them a chance to do work.

I do not believe that any member of one institution can set proper papers for members of another institution. If students should come up to the college and after being there three or six months be permitted to give evidence of their power through examinations, I am sure I never should object to examinations *per se* given that way; but when these examinations give tone and color to everything that is done in the secondary school, and as the pupil approaches the time

when the question is to be decided whether he can go to college or not, there is a nervous tension thrilling through the pupils and through the teachers, narrowing the instruction, often driving pupils, parents and teachers almost crazy, I say it is time that careful, serious thought be given to this matter. I don't say this in the spirit of criticism; I say it because I have seen it year after year and I see now a member of my own family, who is perhaps of average ability, who has as hopeful an outlook as most pupils who are looking toward college, and who is in a school which is most broadly managed, where every consideration is given, yet under these favorable conditions, within a year of college is beginning to experience a sort of nervous anxiety which to me is most painful to see. Mr. Chairman, I say I do not say this in the spirit of criticism, I know that these things are moving as fast perhaps as they can move, but I do believe that it is not long before we shall see something different.

Just a word in regard to the capacities of pupils. The teachers in secondary schools may know a great deal about the children under their charge, provided their attention is not diverted to something that is extraneous and something that makes the school unsocial. My friend speaking on the other side of the room of the isolation of the results of studies as they are found in the minds of certain pupils, reminded me of the unsocial, purely individualistic tendencies in some of our secondary schools. This condition can never be overcome until our teachers can study, as they certainly can do if they are relieved of this extraneous influence, the pupils. They will do it. It is not necessary to devise any subtle system of child study. They will know their pupils if they are true teachers. I remember some years ago in Yale University we used to have what we called the Thanksgiving jubilee in the autumn, and it came to pass that in the course of a few years a system of dramatics grew up there in connection with those jubilees which the faculty thought were not all that they should be, and they passed a rule that students should not appear in female apparel. The students cheerfully acquiesced in this decision, as they always do at Yale, and when the next jubilee came off those who were designated to take the part of women appeared with large labels on their backs. There was perhaps some delicate suggestion of female apparel, but nothing noticeable, but these labels indicated that one was a chambermaid, one was a waitress, and so on. They were labeled. The point I wish to make here is that the open-eyed teacher of sympathy

and insight needs no label upon any single pupil to enable him to know a great deal about that pupil's tastes, temperament, disposition, power, and all those things that make up the personality. All that we want to do is to remove the slavish feeling that there is something greater in education than developing that whole personality.

THE PRESIDENT: I am very sure there are persons here who have had experience in teaching both boys and girls in the same classes, and those who have had experience not only with boys and girls in the same classes but at various stages of their education both in school and in college. I see two women here who have been college presidents, or are college presidents. I believe they ought to tell us their thoughts upon these subjects.

DR. ALICE FREEMAN PALMER: I should have been very happy to respond twenty years ago, because then I thought I knew something about the subject, but I have studied so many boys and girls in the last twenty years that I now frankly rise and confess, as Doctor Burnham urged that we should, that I don't know. I am afraid, too, that I shall never find out, and that other teachers will hardly find out, the answer to the question as to the capacities of secondary-school pupils, until we have a convention between intelligent and conscientious parents and the teachers themselves. In the minds of all of us there must have been during the discussion and the reading of the papers gratifying remembrance of certain towns in New England where teachers and mothers and fathers are constantly taking counsel together, not simply filling out admirable blanks, but meeting and discussing in the friendliest conversations the interests of their secondary school boys and girls. I have myself made some studies as to the reasons of fatigue and headache in our boys and girls. I don't think they are so much unlike, though what has been said certainly does apply to difficulties more noticeable in the life of the secondary-school girl than in that of her brother. But I find that both boys and girls are quite likely not to eat their breakfast before they go to school or to eat it too hurriedly. I remember very well a few years ago watching a great school for girls in Philadelphia when there was introduced a compulsory luncheon at half past ten o'clock. Teachers who had been discouraged about the capacity of girls of fifteen and sixteen changed their opinions utterly in three months. It seems to me, therefore, that there are some very practical questions for teachers of the secondary-school children and one of them is this which Dr.

Atkinson has referred to, the question of food. Perhaps it is womanish and old fashioned, but for my part I should rather see, in the interests of the work of this association, a careful study of the question of food for school children than even the discussion of a change of requirements for admission to college. To a teacher of girls, as she watches her girls constantly, the question of food is one of the most vital questions, for it is a part of the great problem respecting the nervous pace that we shall give our girls and boys, in our difficult New England climate, and in the emotional life of our society. We must continue to study these serious complications between the schools and colleges and their requirements for admission. But shall we not also study that one ever present in our American life, the question of the social life of our boys and our girls? We who have been boarding-school teachers or teachers in colleges where students are removed from home influences have not had, I venture to say, half the difficulty in dealing with the young people that those have who teach children who are at home and especially the girls who are at home. It seems to me, ladies and gentlemen, before we can decide what the capacities of the young girl may be for intellectual or physical power and development, we must get her away from home. This is a very brutal remark, and does not at all, I know, satisfy the mothers, who feel instinctively that the best place for a girl is with her mother. We have all heard that axiom, all of us teachers, all our lives; but I venture to say, as a lover of girls, that one of the best things in the world for a young girl, if a teacher would discover what her capabilities are, is to get her away sometimes from the wisest mother. Since that may not be possible for our high-school boys and girls, can't the mothers and the teachers together determine something of what these capabilities are by discovering how we may sacrifice our young girls less on the altar even of the Epworth League, or the Society of Christian Endeavor, or the best church fair in the world? These objects, beautiful and noble in their way, are slaughtering our school girls, as we all know, all over the country. The broken down girls and their brothers—for the boys break down nervously, too—cannot be saved, and we cannot discuss fully their possibilities, until the mothers and fathers, and fathers especially, meet with the teachers in convention, as here are meeting the masters of the schools and the presidents of the colleges.

THE PRESIDENT: Is there not some one here who will speak for the academies, in distinction from the high schools and from the college girls?

DR. ATKINSON: For one I should like to hear from Dr. Newhall, of Wilbraham Academy, who has some ideas to offer, I am quite sure, on the question of the afternoon.

DR. WILLIAM R. NEWHALL, Principal of Wesleyan Academy, Wilbraham, Mass.: I am not prepared to enter into the discussion of the afternoon, though I am in most hearty sympathy with the papers that have been presented. "Fitness to enter college depends on physical development and moral character," was one of the remarks of Dr. Burnham. Within a few days the registrar of one of our leading New England colleges has written to me with reference to the fitness for entrance at his institution of a young man who had failed in the special examination that had been set. The registrar said in this letter: "If you think that the young man has sufficient character and sound enough health to maintain his college course, we are ready to receive him." It seems to me there is a larger disposition on the part of college authorities than is realized by the secondary teachers to receive students of qualified powers, quite apart from the specific preparation which they may have had. Our boys and girls are often sadly deficient in their personal habits, and need instruction with reference to diet, exercise, sleep, and the care of their own bodies. The United States navy and the United States army require specific physical examinations. Why should not the colleges also? Why should not the leading secondary schools provide for proper physical instruction? Oftentimes in my own experience incorrect and positively vicious habits have been remedied in this way and with the sound body has come a clearer intelligence and a stronger will, and the stupid student has become successful. There is an ethical significance in physical examinations and in physical development which up to this time has not been realized. Boys and girls away from home in our academies are subject to specific regulations in the matter of sleep and of diet and it is the uniform experience, I suppose, of masters of such schools that increased capacity for study and better health result. Somewhat of this ought to come everywhere. For myself, I hope that a physical test will be applied soon by the colleges, and that every secondary school will provide such physical training as shall secure for the pupil mastery of his own body with real self-intelligence and without undue self-consciousness.

PRESIDENT JULIA J. IRVINE, of Wellesley College: I wish to thank the last speaker for calling attention to the fact that the colleges are

sometimes a little better than their word, and I believe you will allow me, and perhaps others will to take a moment of your time in instancing a thing upon which they are also better than their word. We all know the defects of college announcements. We all know or suspect that some other college puts more in its announcement than it is always ready to make good. We may acknowledge that in the haste of printing we sometimes do the same thing ourselves. But there are other things that are not put in the college announcement which nevertheless a college has, and I speak for one that has a requirement in health which it exacts by a rigid examination and which it requires a student to maintain through her college course. (Cries of "Good.") We think it is.

May I have another moment to say how heartily glad I am to hear attention called to the loss of power between the grammar school and the high school, and though not so directly, certainly also to the loss of power that there often is between the high school and the college. Whether the same plan that has been so fully set forth by Dr. Atkinson in regard to bridging this chasm between the lower school and the next one would answer if it were applied to the high school and the college I cannot tell. Practical difficulties suggest themselves to me. I am afraid there are those here who would know how I should hesitate to recommend the addition of any more details to the Wellesley entrance certificate. But I must ask, if the college is to get the information that it ought to have, that it tries to get, that it most highly values, as to the character of its entering candidates, how shall it do it? Will the school give this out of its grace? It does sometimes on direct application in individual cases. Will it, as I may say, form a habit of doing this? Must a college first make the requirement?

MR. CHARLES C. RAMSAY: I should like to ask a question of Dr. Atkinson, or others, that may be of interest to some here besides myself. There is a great desire on the part of many earnest teachers to *individualize* more in their instruction and management of pupils. The colleges have been charged this afternoon with some responsibility, acting upon the schools through their requirements for admission, for the inability of teachers to do so. Perhaps, in some measure, there are grounds for such a charge; but is there not another and greater hindrance, that is, conventional standards of judgment upon partially and impartiality that prevail in the community and in the school itself? How many here have not heard the cry of partiality

raised against them when they have tried in all good conscience to individualize in their treatment of pupils? The popular, but indiscriminating and ill-judged, cry is, "Treat all alike." Any departure from such uniformity of procedure is followed, at least in some places, by the utterance: Treat my child like you treat my neighbor's; I pay as much taxes to support the schools as he."

DR. FRED W. ATKINSON: To speak concretely of one form of partiality, there is complaint in Springfield — and it is a complaint often heard in other places as well — that the college preparatory pupils are given the best teachers, and that the programme is based entirely on their particular needs.

I tried this afternoon to show that the school's attention should first be directed toward the physical and intellectual well-being of each individual pupil, quite regardless of his destination. I believe the best teachers should divide their time about equally between those who are and those who are not going to college. The complaint that college preparatory pupils receive undue consideration must be met. The plan of pupil study, which is under consideration in Springfield, attempts to do away with this form of partiality.

DR. ROBERT P. KEEP, Principal of the Norwich Free Academy: It occurred to me as Mrs. Palmer was referring to the need of healthy food, adequate food, and of looking out for the physical support during the school session of the boys and the girls in our high schools, that it might be an interesting thing if some rough result could be arrived at among the principals of the high schools and academies that are here present as to how large a proportion of those high schools and academies that are here represented which maintain a single session were in the habit of providing for a lunch in that session. I don't know whether it would be at all feasible to obtain any such result at a meeting like this, but I think it is always interesting to get hold of our facts when we are most interested in them.

I was very much myself struck with the wisdom that had been shown in what had been omitted as well as what had been laid down in the inquiries that Dr. Atkinson had arranged. I think we must, however, recognize that there is not everywhere an advance in the intelligence of the parents who send children to high schools. On this account, the attempts to get intelligent coöperation from a large percentage of parents of pupils are somewhat disappointing, and I dare say that it is true that many parents would half resent the effort

made on the part of schools to extract information from them. They would be somewhat apt to say: "We turn the child over to you and we don't want to have you ask any questions about the child. Your business is to take the child and do for him as you can with the light that you have." That only shows again how very important the conference between representatives of the high schools and parents, necessarily selected parents, is.

DR. FRED W. ATKINSON: Dr. Keep has asked the high schools a question, I should like to ask the academies a question. In how many academies represented here is there the physical examination spoken of by Dr. Newhall?

MR. EDWARD G. COY, Head Master of the Hotchkiss School, Lakeville, Conn.: In answer to Dr. Atkinson's question, it has been the custom of our school from the very first to give every pupil a thorough physical examination at the beginning of each year, in the fall, whether he be a new pupil or an old one. This examination is made as complete as possible and includes both the eye and the ear tests. The information gained through these examinations has been found to be invaluable in determining the obstacles in the way of many students' success with their studies and in determining also the extent of physical or mental power. We have been surprised and astonished at the results obtained by the eye and ear tests. We have found quite frequently that, in the language of the examiner, one boy can hear three inches with one ear and fifty-one inches with the other. It makes a tremendous difference in which direction the teacher is from such a boy, for the purpose of determining whether he would be open to the charge of being inattentive to explanations given in the classroom or not. The differences in the seeing-power of the two eyes are oftentimes quite as great; so that if such a boy does not sit in a certain direction from the blackboard, explanations put upon the blackboard are absolutely useless to him. In few instances have parents discovered that there was any defect; and consequently nothing had been done to relieve or correct the infirmity. These examinations are repeated in full at the close of each school year. Some very interesting data have been thus obtained as the result of one year's experiments. We are interested in the examinations to be made this fall for their bearing on the question of physical growth as related to the season of the year. I think it was an article in the *Forum* some time ago which stated that a boy grows as much during the summer vaca-

tion as during the rest of the year. If that is so, it has a very important bearing upon the length of the summer vacation, I am not able to say whether a boy grows because of the summer vacation or whether a long summer vacation ought to be given because of the growth; but certainly there is a very interesting question to be studied here. We find our physical examinations absolutely indispensable.

While I am on my feet I would like to add a word expressing my very great indebtedness to the authors of these papers, because of the emphasis which they have laid upon certain matters that have perplexed me personally, and that I think have perplexed other secondary-school teachers. In fact, the valuable information that has come to us this afternoon through these papers has set my mind working so intensely in the line of meditation and reflection as almost to paralyze my power of production or reproduction. While, therefore, I would like to contribute something to a discussion so important as this out of my own experience, I can find myself able to do little more than to concur in the conclusions that have been stated; and so far as that corroboration, based upon my own experience, is worth anything I am very glad of the opportunity to give it. The point suggested by the paper, perhaps suggested to me because of the mood that I was in—the point suggested to me was the impoverishment of class work under the system of pressure which has followed inevitably from the enlargement of the requirements for admission to college. I remember when I came to Easthampton in 1862, to prepare for college under Dr. Josiah Clark at Williston Seminary, I said to one of the boys in the senior class, as we were talking over school life one afternoon, “What is there about Dr. Clark’s recitations that makes them so popular?” He answered: “Why, one of those recitations is a liberal education in itself.” And I have often heard Dr. Taylor’s pupils, the old Andover boys, speak of their class-room exercises in the same way. I may be wrong, but my impression is that, with all the advance that has been made in raising the standard of education, the standard of candidates for admission to college, and the development of power in certain directions, class-room exercises have not improved in twenty-five years upon the exercises of Dr. Taylor and Dr. Clark; and that in the attempt to develop power for going ahead we have narrowed our work to one or two lines.

What we need now is to slow up, that our work may be broadened and enriched. Every teacher, I think, finds, as he goes on from year

to year teaching an author like Virgil or Homer, and is surprised to find that he has less and less time for reviews every year. Why? Because his own studies, and reflections, and experience in teaching furnish so much to present for inspiring and enriching the work of the class room that he can occupy the whole time with the advanced lesson. And yet were tests of quantity, proper enough, become great and imperative, one feels a pressure that is irresistible. That pressure leads to an inquiry as to what is the best method; and by best method we usually mean the most direct method, or, to adopt the language of the day, that method which will save time. We teachers are as much the victims of the passion to save time and save labor in education as you find among men in the commercial world; and in the search for conditions by which we may save time and save labor we are exposed to another tendency—well stated by Professor Peck in a recent number of the *Cosmopolitan*—to make education largely a matter of applying and working out formulas. But the moment we reduce methods of education to formulas, and leave out the personal facts, the personality of the master, we become artificial and mechanical. I am glad, therefore, that the papers this afternoon are agreed in calling for a larger liberty for the teacher, which implies, of course, greater fitness for his work. Better teaching is indeed desirable. But as a condition of better teaching the pupil's attention should not be so taken up with the mere amount of the college requirement as to leave scant time for a really superior teacher to enrich his work out of his own experience and culture.

MR. JOSEPH H. SAWYER, Principal of Williston Seminary, Easthampton, Mass.: Since request has been made that the officers of academies report what is being done for physical culture of pupils, I will say for Williston that physical measurements have been made there during many years, and gymnastic training for a longer time. The gymnasium was built in 1864, and from the beginning the Amherst plan has been followed. Physical measurements have been made so long that we have an accumulation of statistics, from which averages can be made. There a boy of certain age and height can be shown whether his measurements fall below or rise above the average in the class to which he belongs. He is advised of his physical defects and told what to do to remedy them.

THE PRESIDENT: Dr. Atkinson, would you like to add anything by way of summary or reply? Professor Burnham?

DR. WILLIAM H. BURNHAM: I should have been very glad to make some other suggestions. I should have suggested that not only physical but psycho-physical tests should be added, but I thought that would seem too ideal and too far in the future.

I am glad that the matter of food has been mentioned. I know a boy in a neighboring city who goes to high school where there is one session a day. The family eat breakfast at about 6 o'clock in the morning. He has a capricious appetite and eats very little. He goes to school and eats nothing but a little pastry until he comes home at 2 o'clock in the afternoon, to eat a cold dinner, whatever he happens to fancy. I know a young woman, now a graduate of Smith College, who in the high school followed a plan very much like this and was entirely broken down in health at the end of the course. She went to Smith College, lived a regular life, and came out of the college a healthy young woman. She says now that the dyspepsia from which she suffered was due to the irregularity in eating and lack of food while she was studying in school. I would suggest that a profitable inquiry might be, how many boys and girls eat anything besides pastry before 2 o'clock in the afternoon.

I would suggest that one might profitably make the inquiry also how many boys and girls have ever been out into the country. You may think that very strange, but I am told in Worcester that a great many of the pupils, especially the girls, have never been into the country until they come to take the subject of botany in the high school. There are a number of inquiries of this kind that might profitably be made, and the aim of my suggestions was largely to find some means of giving secondary teachers the liberty and the time so that they could make such investigations.

With this the discussion closed, and after certain announcements by the secretary an adjournment was taken until evening.

FRIDAY EVENING

The evening address was presented by President William J. Tucker, of Dartmouth College, and had for its subject :

THE INTEGRITY OF THE COLLEGE UNIT

If one were to attempt to apportion the educational gains of the past decade, designating the exact contribution from each part of the educational system, he would not be able to give any